

ABSTRACT OF THE DISCLOSURE

Apparatus is provided for detection of viable and potentially hazardous biological particles in a population which may be dispersed in fluid flow. The particles are characterized as biological and viable by contacting particles with laser light from a laser diode and then looking for the emission of fluorescence which is typically emitted from bacteria or bacterial spore. Biomolecules which are representative of viability are now known to be excited in range of 320nm and longer. The resulting apparatus is economical, compact and has low-power requirements enabling portable operation. Preferably, the laser diode is combined with an aerodynamic particle sizer to separate particles for sequential contacts, or with additional timing lasers for establishing particle size.